

REAL-TIME DETERMINATION OF WEB TENSION AND CONTROL USING POSITION SENSORS

ABSTRACT

5 Web tension in web material passing through a web transport system is determined in
real time using position sensors coupled to driven rollers that define a beginning and an end of
a tension zone. The position sensors on the rollers provide information related to the amount
of strained web material that has been added and subtracted from the web material present in
the tension zone. The amount of web material added to, subtracted from and present in the
10 tension zone in a sample time period is then converted to an unstrained amount of web
material that when combined provides an estimate for the present amount of unstrained web
material present in the tension zone. Because the length of the tension zone is both fixed and
known, the tension in the web material is determined from the present amount of unstrained
web material in the tension zone.